

Module 6: Food and Diabetes

BACKGROUND

Thinking about food and making food choices are often the most difficult part of living with diabetes for many people. “The truth is, healthy eating for a person with diabetes is really no different than healthy eating for a person without diabetes. It’s a matter of eating a wide variety of foods and a balanced amount of carbohydrates, proteins, and fats.”

Meal Plans:

It is recommended that people with diabetes see a registered dietitian or certified diabetes educator, to get individualized information on “meal planning/daily eating.” A meal plan is something that is used every day (as opposed to the term “diet” which implies short term). The meal plan takes into account the foods the person likes to eat, their blood sugar values, weight and personal goals. A registered dietitian will be able to help determine how many servings of each food group a person should eat per day to reach their diabetes goals (goals may include weight loss, lower blood sugar, lower blood pressure, etc.).

What’s in Food?

Foods are made up of six nutrients that feed our bodies and make them healthy:

- Carbohydrate
- Protein
- Fat
- Vitamins
- Minerals
- Water

The **three nutrients that contain calories** and can affect blood sugar are:

- Carbohydrate
- Protein
- Fat

Healthy Dietary Habits:

In general, healthy dietary habits consist of eating at regular times. Drinking alcohol in moderation and eating a variety of foods that contain:

- Less sugar
- Less fat
- Less salt
- More fiber

Eating at Regular Times:

Eating meals at regular times every day will help keep the blood sugar more consistent. Skipping meals can cause the blood sugar to drop too low and can also make someone very hungry, so that they have a tendency to overeat later in the day. This can lead to high blood sugar and weight gain. *Eating three small meals and a snack can help to keep the blood sugar more even throughout the day.*

Sugar (Carbohydrates):

Starches and sugars make up carbohydrates. In the body, carbohydrates get broken down into glucose, a sugar that is the body's main source of energy. Foods that are high in carbohydrates can make the blood sugar go up faster and higher than other foods (example protein or fat). They can also cause weight gain. Examples of healthier carbohydrates include: cereals, whole grains, pasta, bread, fruit, legumes and milk products.

Fat:

Fat is high in calories. Certain fats can clog blood vessels. It's best to eat small amounts of these foods, and choose healthier, unsaturated fats when possible. Fat is found in butter, oil, whole milk, meats, cheese and many snack foods. Healthier fats include: olive oil, vegetable oils such as safflower and canola.

Salt:

Many people with type 2 diabetes also have high blood pressure. High blood pressure, in addition to diabetes, can increase the risk of heart attack and stroke. Too much dietary salt can increase blood pressure. It is helpful to decrease salt intake. Watching the added salt (salt shaker) is a good start and learning to read labels for sodium (salt) content is also a good idea.

Protein:

Proteins are used as replacement parts/building blocks for the body. Proteins are an important part of any healthy diet. Many Americans, eat more protein than they really need. People with kidney problems may be advised to limit the amount of protein they eat. Low fat milk products, lean cuts of meat and poultry are good sources of protein. Seafood is a good source of protein, tends to be lower in saturated fat and cholesterol than meat and contain healthy omega-3 fats.

FYI: Alcohol and Diabetes

Alcohol:

An occasional alcoholic drink, especially when taken with a meal, is unlikely to cause harm. Alcohol tends to be high in calories, so should be factored in to the meal plan. These are some important tips about consuming alcohol:

- Alcohol can affect the blood sugar level, most often causing it to go lower if taken on an empty stomach.
- Signs of low blood sugar are similar to signs of too much alcohol (being drunk). There is a risk that a person having a hypoglycemic (low blood sugar) reaction may not get the help they need (they may be mistaken for someone who had too much alcohol).
- Some medications, including some diabetes medications, may interact with alcohol.
- Some health problems (for example, high triglycerides, pancreatitis or liver disease) can worsen with alcohol.
- Alcohol can affect thought processes and inhibitions. It is easier to overeat when drinking and/or to become less careful with monitoring for worrisome symptoms.

It's a good idea for someone with diabetes to tell a friend the signs/symptoms of low blood sugar and how to treat low blood sugar, if they plan to drink alcohol. It's an even better idea to limit the intake to a moderate amount, one drink for women, one to two for men, and with a meal.

Reading Labels:

Reading and understanding food labels will provide you with more information to make healthier choices. The “Nutrition Facts” located on the food package will tell you the serving size and the amount of various nutrients such as total fat, saturated fat, calories, sodium, fiber and, carbohydrates per serving.

The list of ingredients, show the ingredients that make up that food item in descending order by weight, which means the first ingredient makes up the largest portion of the food. Checking over the ingredient list is a good way to spot things you’d like to avoid. For example palm oil and coconut oil are high in saturated fat.

It is helpful to check out the label when grocery shopping, after a little while, you will know which brands/items are healthier choices.

Here is an example of a Nutrition Facts section of a food label:

Chili with Beans	
Nutrition Facts	
Serving Size: 1 Cup (253 g)	
Servings per container: 2	
Amount per serving:	
Calories 260	Calories from Fat 72
	% Daily Value
Total Fat 8g	13%
Saturated Fat 3g	17%
Cholesterol 130g	44%
Sodium 1010mg	42%
Total Carbohydrates 22g	7%
Dietary fiber 9g	36%
Sugars 4g	
Protein 25g	

Serving Size and Servings per Container:

At the top, you’ll see serving size and then the number of servings per container. Ask yourself, “How does the serving size compare to your usual serving?” If you normally **eat 2 cups** of chili, **then you’ll need to double all the numbers** in the Nutrition Facts section.

Amount of Nutrients per Serving:

Total amounts are shown in grams, abbreviated as **g**, or milligrams, shown as **mg** (one-thousandth of a gram). A teaspoon of margarine weighs 5 grams, as an example.

Calories:

To determine how many calories you need to eat a day and maintain your weight, talk with a dietitian. If you are trying to loose weight, you will need to consume less calories than your body burns for energy. Reading the label on foods will allow you to choose lower calorie foods (especially helpful when comparing similar products).

Total Fat:

Look at the grams of total fat per serving. Total fat is broken down into fats that are good for you, such as *mono and polyunsaturated* fats, and fats that aren't so good, such as *saturated and trans* fats. A "low fat" food has 3 grams of fat or less per serving.

Cholesterol:

Foods high in cholesterol may increase your blood cholesterol. Look for lower cholesterol foods in general. Foods with less saturated fat also have less cholesterol.

Sodium:

The recommended total daily intake of sodium for healthy adults is 2400-3000mg per day. If you have high blood pressure, it may be helpful to consume slightly less.

Total Carbohydrates:

Look at the grams of total carbohydrates, rather than just the sugars. Total carbohydrates on the label include sugar, complex carbohydrates and fiber. If you look only at the sugar number, you may omit foods that are healthy such as fruits and milks, while overeat foods such as cereals that have no sugar, but may contain a significant amount of carbohydrates.

The grams of sugar and fiber are counted as part of the grams of total carbohydrates. If a food has 5 grams or more of fiber per serving, then subtract the fiber grams from the total grams of carbohydrate for a more accurate estimate of the carbohydrate content.

Fiber:

Fiber is part of plant food that is not digested. Dried beans such as kidney or pinto beans, fruit, vegetables and grains are all good sources of fiber. The recommendation is to eat 25-30 grams of fiber per day (for people with and without diabetes).

Protein:

(See above)

% Daily Value:

The % of daily value indicates how much of a specific nutrient (example: protein) is contained in a serving based on a 2000 calorie meal plan. A product is considered a good source of a particular nutrient if one serving provides 10-19% of the Daily Value. A product is considered high if it contains 20% or more of the Daily Value. If the Daily Value is 5% or less, the food is low in that nutrient.

Ways to Use the Information on Total Amounts:

Choose foods that have smaller amount of saturated fat, cholesterol and sodium.
Try to select foods that have more fiber.

Other Tips:

If a product says “Sugar Free”, that doesn’t mean that it doesn’t contain calories or carbohydrates. Check the label for grams of carbohydrates and calories.

Food and Portion Size:

- The list below contains some serving size guidelines (one serving):
- Meat, fish and poultry-3 ounces (about the size of a deck of cards or the palm of your hand).
- Cheese-1 ounce (about the size of your thumb).
- Milk, yogurt, fresh vegetables-1 cup (about the size of a tennis ball).
- Bread-one slice
- Cooked rice-1/3 cup
- Cooked pasta-1/2 cup
- Potato or corn-1/2 cup
- Dry cereal-3/4 cup

PATIENT OUTCOMES/GOALS

By the end of the educational session, the diabetic client will be able to:

1. State that the three nutrients that have calories and affect the blood sugar are carbohydrate, protein and fat.
2. State that carbohydrates raise the blood sugar faster and higher than protein and fat.
3. List 2 foods high in fiber and describe benefits of fiber.
4. Read a label for carbohydrate and fat content.

TOOLS/TEACHING AIDES

Aides:

- Food labels (pick some you are familiar with), measuring utensils (cups, spoons)

Handouts:

- “*Choosing Food*”, Type 2 Diabetes: A Curriculum for Patients and Health Professionals, American Diabetes Association, 2002.
- “*What’s in Food*”, Type 2 Diabetes: A Curriculum for Patients and Health Professionals, American Diabetes Association, 2002.
- “*Sources of Cholesterol and Fat*”, Type 2 Diabetes: A Curriculum for Patients and Health Professionals, American Diabetes Association, 2002.
- “*Sources of Fiber*”, Type 2 Diabetes: A Curriculum for Patients and Health Professionals, American Diabetes Association, 2002.
- “*Protect Your Heart: Make Wise Food Choices*”. American Diabetes Association, Toolkit No. 6.
- “*Protect Your Heart: Check Food Labels to Make Heart-Healthy Choices*”. American Diabetes Association, Toolkit No. 9.

KEY MESSAGES

1. There is no such thing as a “diabetic diet.” Rather, people with diabetes, like everyone else, should eat a healthy diet.
2. Food raises blood sugar. Food intake needs to be adjusted to achieve blood sugar target levels.
3. It’s important to see a dietitian to help develop a personal meal plan.
4. Making dietary changes can be difficult, but, it is more manageable when done in small steps. Start with one change and build on it.

Assessment Questions	Content	Tips and Teaching Aids
<p><i>Have you seen a dietitian for information on food and diabetes and to develop a personalized meal plan?</i></p> <p><i>If so, when was your last visit and please explain what your meal plan consists of?</i></p> <p><i>Do you know what nutrients have calories and affect the blood sugar?</i></p> <p><i>Do you know what nutrient raises the blood sugar faster (and often higher) than the others?</i></p> <p><i>What have you heard about fiber?</i></p> <p><i>Can you name two foods that you like to eat that are high in fiber?</i></p>	<p>The three nutrients that contain calories and can affect blood sugar are:</p> <ul style="list-style-type: none"> • Carbohydrate • Protein • Fat <p>Carbohydrate foods raise the blood sugar faster and often higher than other food. Starches and sugars make up carbohydrates.</p> <p>“If you divide the carbohydrates you eat up among all your meals/snacks, your body can use the sugar more easily and keep your blood sugar levels more even.”</p> <p>Examples of healthier carbohydrates include: cereals, whole grains, pasta, bread, fruit, legumes and milk products.</p> <p>Fiber:</p> <p>Fiber is part of plant food that forms the outer shell and is not digested. Fiber may help lower the blood sugar and fat levels. Fiber is found in fruits and vegetables. Generally, the more unprocessed a food, the more fiber it has. Dried beans such as kidney or pinto beans, fruit, vegetables and grains are all good sources of fiber. The recommendation is to eat 25-30 grams of fiber per day (for people with and without diabetes).</p> <p>Ways to include more fiber in your diet:</p> <ul style="list-style-type: none"> • Eat whole grain breads (vs. white/bleached flour products). • Add oats to meatloaf or use oat flour for baking and thickening foods. • Eat fresh fruits and vegetables with their skins on (apples, potatoes, carrots, tomatoes). • Use beans more often as a side dish and eat bean dishes such as chili, bean soup, split pea soup. • Add beans or peas to other dishes such as spaghetti sauce, soups, salads, and casseroles. 	<p>Note:</p> <p>If clients have a meal plan in place, summarize the content and reinforce their efforts to use food as part of their treatment plan.</p> <p>Handout:</p> <p>Protect Your Heart: Make Wise Food Choices. American Diabetes Association, Toolkit No. 6 “Sources of Cholesterol and Fat” “Choosing Food” “What’s in Food”? “Sources of Fiber”</p>

	ACTIVITY																													
<i>Do you understand how to read a food label, looking at: serving size, total carbohydrate, total fat and protein?</i>	Reading Labels: Reading and understanding food labels will provide you with more information to make healthier choices. The “Nutrition Facts” located on the food package will tell you the serving size and the amount of various nutrients such as total fat, saturated fat, calories, sodium, fiber and, carbohydrates per serving. The list of ingredients, show the ingredients that make up that food item in descending order by weight, which means the first ingredient makes up the largest portion of the food. Checking over the ingredient list is a good way to spot things you’d like to avoid. For example palm oil and coconut oil are high in saturated fat. It is helpful to check out the label when grocery shopping, after a little while, you will know which brands/items are healthier choices. Here is an example of a Nutrition Facts section of a food label: <div>Chili with Beans<table><tr><th colspan="2">Nutrition Facts</th></tr><tr><td colspan="2">Serving Size: 1 Cup (253 g)</td></tr><tr><td colspan="2">Servings per container: 2</td></tr><tr><td colspan="2">Amount per serving:</td></tr><tr><td>Calories 260</td><td>Calories from Fat 72</td></tr><tr><td></td><td>% Daily Value</td></tr><tr><td>Total Fat 8g</td><td>13%</td></tr><tr><td>Saturated Fat 3g</td><td>17%</td></tr><tr><td>Cholesterol 130g</td><td>44%</td></tr><tr><td>Sodium 1010mg</td><td>42%</td></tr><tr><td>Total Carbohydrates 22g</td><td>7%</td></tr><tr><td>Dietary fiber 9g</td><td>36%</td></tr><tr><td>Sugars 4g</td><td></td></tr><tr><td>Protein 25g</td><td></td></tr></table></div>	Nutrition Facts		Serving Size: 1 Cup (253 g)		Servings per container: 2		Amount per serving:		Calories 260	Calories from Fat 72		% Daily Value	Total Fat 8g	13%	Saturated Fat 3g	17%	Cholesterol 130g	44%	Sodium 1010mg	42%	Total Carbohydrates 22g	7%	Dietary fiber 9g	36%	Sugars 4g		Protein 25g		Ask client for permission to look through their pantry with them. Ask them to pick out a food item. Use the food item to guide the discussion on reading labels. Have an example label available to review in case you are not able to find a suitable example in the clients home. Handout: “Protect Your Heart: Check Food Labels to Make Heart-Healthy Choices”
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Ways to use the information on total amounts:

	<ul style="list-style-type: none"> • Choose foods that have smaller amount of saturated fat, cholesterol and sodium. • Try to select foods that have more fiber. <p>Other Tips:</p> <p>If a product says “Sugar Free”, that doesn’t mean that it doesn’t contain calories or carbohydrates. Check the label for grams of carbohydrates and calories.</p> <p>Food and Portion Size:</p> <p>The list below contains some serving size guidelines (one serving):</p> <ul style="list-style-type: none"> • Meat, fish and poultry-3 ounces (about the size of a deck of cards or the palm of your hand). • Cheese-1 ounce (about the size of your thumb). • Milk, yogurt, fresh vegetables-1 cup (about the size of a tennis ball). • Bread-one slice • Cooked rice-1/3 cup • Cooked pasta-1/2 cup • Potato or corn-1/2 cup • Dry cereal-3/4 cup 	
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SELF-MANAGEMENT GOAL

Educator may wish to paraphrase the following:

- It's helpful to consider setting a goal or an aim along with a behavior specific plan that you want to work toward over the next few weeks
- It should be something you want to do in order to improve your health
- It may be specifically related to diabetes or may be just something in general that you want to do to improve your health
- Would you be willing to take a few minutes to think about a goal you would like to achieve and work through an action plan to achieve your goal?

Try to get client to write down their goal and action plan (Self-Management Goal/Action Plan Form). Remember to let them work through the process as much as possible.

Examples of Goals pertaining to this Module/Section Include:

- Keep a one day food diary (listing everything eaten with portions). Identify those foods that contain carbohydrates.
- Make an effort to read labels of foods purchased in the next week at the grocery store and those already in the home prior to eating them.
- Make an appointment with your doctor/clinic team registered dietitian for personalized meal planning information.
- Make a shopping list (template) for on-going use.

TOOLS/TEACHING AIDES, REFERENCES

1. American Diabetes Association Complete Guide to Diabetes, 4th Edition. *Writer*, Nancy Touchette, PhD. American Diabetes Association, 2005.
2. "Healthy Eating: Make it Happen – Weight Loss and Exercise. American Diabetes Association. Website: <http://www.diabetes.org/weightloss-and-exercise/weightloss/healthy-eating.jsp>
3. Type 2 Diabetes: A Curriculum for Patients and Health Professionals. American Diabetes Association, 2002.
4. Weight Loss Matters. American Diabetes Association website: <http://www.diabetes.org/weightloss-and-exercise/weightloss/portion-size.jsp>)